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Tenure, Diversity, and Commitment

Community Participation for Urban Service Provision

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Abstract

What factors influence community participation in the delivery of urban services? In particular, does security of tenure enhance the probability of participation as it provides individuals with incentives to act collectively in pursuit of a common objective? And are collective efforts less likely to succeed when there is a high degree of heterogeneity in culture or endowments among community members?

Lall, Deichmann, Lundberg, and Chaudhury use household level survey data for Bangalore, India, to show that tenure security has a significant impact on the willingness of residents to participate even when neighborhoods are diverse in terms of their cultural background and welfare status. Their findings suggest that participation is possible in heterogeneous communities when it is a means to a common objective and not a goal by itself.

This paper—a product of Infrastructure and Environment, Development Research Group—is part of a larger effort in the group to examine factors influencing urban development. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Yasmin D'Souza, room MC2-622, telephone 202-473-1449, fax 202-522-3230, email address ydsouza@worldbank.org. Policy Research Working Papers are also posted on the Web at http://econ.worldbank.org. The authors may be contacted at slall1@worldbank.org, udeichmann@worldbank.org, mlundberg@worldbank.org, or nchaudhury@worldbank.org. June 2002. (32 pages)

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Tenure, Diversity and Commitment

Community Participation for Urban Service Provision

I. Introduction

Rapid population growth in developing country cities creates an ever increasing demand for basic public services. City governments often do not have the capacity, know-how and fiscal resources to provide adequate services to newcomers while addressing the existing backlog in under-serviced areas. Public provision is therefore not always efficient and affordable, and sometimes does not consider the needs of individual communities (Ostrom, 1996). Private service provision is an option in some instances. For example, water supply by tanker truck or garbage collection is efficiently provided by private contractors in parts of some cities. However, the opportunities for cost recovery are often limited, especially in poorer communities. Consequently, private contractors frequently have limited incentives to provide basic services.

In situations where government is unable and markets are unwilling to provide basic services, community based efforts may be able to fill the gap. Isham and Kakhonen (1999) find that collective action improves the performance of community based water supply projects in Indonesia, particularly as households gather collectively for operation and maintenance activities such as cleaning drains and tanks. Pargal et al. (1999) evaluate determinants of community organization for garbage collection services in Dhaka, Bangladesh and find that homeowners have stronger community ties than those who are temporary residents. If self-provision of urban services by local communities and neighborhoods can be considered a useful complement to public and private provision, a major policy question is how community action can be encouraged and facilitated by governments and donors. To answer that question we need to know more about what motivates individuals to engage in community initiatives.

Individuals may act collectively for many reasons. Typically, some degree of social cohesion is seen as a prerequisite. This issue has received renewed attention largely due to the work of Putnam (1995; see also Woolcock 1998, Knack 1999) who argues that community social interaction through clubs or other organized activities encourages the formation of 'social capital'. Social capital provides benefits to communities that are similar to agglomeration economies which provide benefits to firms. Proximity encourages face to face contacts and other types of interaction, which create knowledge spillovers and help develop norms of trust and reciprocity between agents which in turn reduce transaction costs (Collier 1998, Fukuyama 1995). The main difference is that community participation for social interaction is an example of a non market benefit, while agglomeration economies are examples of market benefits.

Baland and Platteau (1995) distinguish between communities that engage in collective action because they have similar *endowments*, similar *culture*, or similar *objectives*. Homogeneity in endowments and culture are important factors influencing participation in primarily social communities such as church groups or recreational clubs (Alesina and La Ferrara 2000). Economic benefits through networking at social functions or on the golf course will be a useful side product. However, the primary reason for joining is the ability to interact socially and 'bond' with other members of the community who tend to have similar incomes or share the same religious, ethnic, or linguistic background.

It is not clear that these 'bonding' factors matter to the same extent when individuals act collectively in pursuit of similar objectives. The example we are concerned with in this paper is the self-provision of basic services such as access to water or solid waste collection. To achieve a specific task whose benefits are realized by each community member individually, residents are likely to overcome differences in endowments or culture. Here community interaction is a means to an end, rather than an end in itself. The limited literature on this topic largely focuses on the impact of inequality on collective action. In a study of group formation in rural Tanzania, La

Ferrara (2000) finds that inequality tends to reduce membership in groups that have economic objectives. The rich are more likely to drop out in communities with higher inequality and individuals tend to sort into homogeneous income groups leading to a decline in group functioning. Baland and Platteau (1997) develop a model to examine the impact of inequality on efficiency in the management of common property resources. While they find an ambiguous impact, they conclude that participation may decrease as inequality increases due to free rider problems in using common resources.

In this paper we investigate what factors determine willingness to participate in community based initiatives when there is a homogeneity of objectives but not necessarily homogeneity in culture or endowments among community members. Controlling for community diversity, we are most interested in examining the role of security of tenure. There are several reasons why tenure status would contribute to enhanced participation in community programs for service provision. Tenure security provides incentives for individuals to invest in the community because the gains from improvements in services can be capitalized in the home's value (Hoff and Sen 2000). Home owners will also expect to live in their residence for a long time and will thus anticipate an extended future stream of benefits from any improved service. In rigid, regulated housing markets (rent control, renters protection), some renters will expect to see the same long term benefits and therefore have the same incentives as owners. Home owners also tend to have lived in the community for a longer time. The longer the period of residence, the greater will be the level of social interaction between people and thus the community's social capital (Hoefferth and Iceland 1998). Using data for the US, DiPasquale and Glaeser (1999) find that home owners tend to be more engaged in community groups, letting them conclude that home owners tend to be "better citizens". This is a major motivation for tax incentives and other programs that encourage home ownership in Western countries. The same is likely to hold in developing countries. Using household level data from Ecuador, Lanjouw and Levy (2001) show that households with a stronger claim to their property are significantly more likely to

participate in activities to improve the community. Conversely, Bardhan (1993) shows that a large migrant population does not facilitate cooperation in urban communities.

We use a recently completed survey from Bangalore in southern India to examine the impact of tenure security on the willingness of households to participate in community based service delivery programs. We are also interested in the question to what extent the shared objective of improving urban services can help overcome differences in culture and social background in heterogeneous communities. In other words, to what extent does evidence in Western countries on the determinants of participation in social clubs hold when the focus is on community participation to achieve an economic objective in developing countries? A basic assumption motivating this question is that community based service provision is a valuable complement to other forms of service delivery. We do not discuss whether this generally holds true or in which circumstances community based service provision is more cost effective, provides better quality infrastructure or is socially preferable to government or private-sector provision. These are important questions on which evidence so far is limited.

The remainder of the paper is organized as follows: In section II, we discuss the analytic approach and describe the factors contributing to community participation in service delivery. Section III describes the data and econometric specifications. We discuss results in Section IV, and present conclusions and policy implications in Section V.

II. A Model of Community Participation

In this section we present a model of community participation in which the individual participates in order to achieve a certain goal such as an economic benefit or an improvement in living standards. Participation is thus not driven by the desire to obtain purely social benefits associated with belonging to a particular group. Also, the decision to participate is not primarily motivated by a concern for one's neighbors, but to obtain private, excludable benefits for oneself. Say for example that the individual lives in an

area that is under-served by municipal services, such as water. He[1] may then decide to join with his neighbors to obtain better water, independently of the city's main supply. The model's self-interested individual could easily be allowed to care for his neighbors, but only to the extent that his neighbors' circumstances affect his own property values.

Our model is based on two simple testable assumptions. First, the returns to participation are higher for owners than for renters. To the individual, there are two benefits to participation: it yields a flow of services, and the flow of services is capitalized in the value of the property. Running water is preferable to no running water, and a house with running water is more valuable than a house without. Presumably, the value of housing stock accrues to the owner, and not the renter. Formally, the household maximizes an additive, unitary inter temporal utility function of the flow of services and the consumption of other goods:

$$U_t=u(s(p_t), x_t-c(p_t)) \qquad (1)$$

where $s(p_t)$ is the flow of services from participation, and $x_t-c(p_t)$ is the within-period utility from the consumption of other goods, less the cost of participation. The household maximizes utility subject to an inter temporal budget constraint, which in any period is defined as its previous wealth, plus any net changes to wealth,

$$W_{t+1} = W_t(1+r_t) + (y_t - x_t - c(p_t)) + h(p_t) \qquad (2)$$

where r_t is the period t interest rate, $(y_t - x_t - c(p_t))$ is net savings, and $h(p_t)$ are the returns to community participation that are capitalized in the stock of housing. This last benefit accrues primarily to the individual who has exchange rights to the property. If the rental market clears, and there is no opportunity for a renter to profit from "key money" or other sale of rental rights, the capital benefits to investment accrue solely to the owner. In distorted rental markets, such as Bangalore, some of these residual claims may accrue to

[1] The use the male pronoun is justified in this case –evidence reported below suggests that female-headed households are less willing to participate.

the renter. In our empirical section below, we allow some renters to receive capital benefits from community investments.

We can solve these utility functions to derive the equilibrium levels of p^*. The individual participates, if the benefits from participation ($h(p^*)$ and $s(p^*)$) are greater than the costs of participation ($c(p^*)$). It is intuitively clear that the owner (or the renter with quasi-ownership rights), who receives both benefits, is more likely to participate for a given cost of participation. The equilibrium level of p^* will be a function of the cost of participation, and a vector of prices/costs associated with the flow of services from participation and household consumption.

Lack of access can be due to two reasons: The household cannot afford to pay for the service, or the service is simply not available in a community either because of physical constraints (e.g., in the case of water supply, there may not be a connection to the trunk network) or because certain population groups are given priority in service access over others. Both of these points are related to the issue of community heterogeneity in endowments and in social background or culture as will now be discussed in turn.

Wealthier households tend to have better access to basic services. The rich can pay user charges or side payments to obtain private or public services. For poor households, on the other hand, the cost of external service provision will represent a much larger share of their total disposable income. For that reason, they will be more inclined to explore less expensive alternatives such as self-help groups. They will also be more likely to contribute labor rather than money if their opportunity cost of time is lower than the potential charges. We therefore expect lower income households to be more inclined to participate in community efforts than wealthy residents. The poorest communities, on the other hand, may face different constraints to community participation. Squatter settlements, for example, are often inhabited by migrant laborers and recent immigrants. These communities may not have accumulated sufficient social

capital to enable community action.[2] Taken together we expect the following patterns: if cost of services does not vary among residents with different welfare status, participation will be lower for the poorest households, then initially rises with increasing welfare, and finally drop off for wealthier residents. At the community level, we might then expect households in areas characterized by larger variations in welfare status to be less willing to participate, if the success of community action depends on the participation of all or most members. This barrier to participation may be overcome, however, if the gains from achieving service improvements from participation will outweigh the cost associated with the increased risk of failure in economically diverse neighborhoods.

Alternatively, services may be provided preferentially to a social group such as the members of an ethnic majority that has more political influence among local decision makers. In that case, those who are members of minorities will be less likely to receive public services. Alesina, Baqir and Easterly (1997) find that the provision of public goods is inversely related to ethnic heterogeneity, although they do not discuss the distribution of services within heterogeneous cities. This implies that ethnic minorities in diverse neighborhoods will be more likely to engage in "goal-oriented" (as opposed to merely social) participation than members of the majority.

This leads to the second testable assumption. As discussed above, participation in social communities tends to increase with economic or cultural homogeneity. To put the argument crudely, individuals have an aversion to heterogeneity, if it implies that they will be forced to associate with people who are not like themselves. One "cost" of participation, therefore, is the act of association itself. This cost is higher in more diverse communities. If this is the case, we will see participation declining with heterogeneity. However, if the goal of participation is to obtain a necessary service that is not publicly provided to members of minority groups, then the cost of associating with non-alike persons will be more than offset by the benefits received from joining a community

[2] In focus group interviews in Bangalore, residents of some of the poorest communities said that they would not engage in community activities because they do not trust their neighbors (Deichmann, Lall and Suri 2002).

initiative. In that case heterogeneity will have no effect on participation or may even increase willingness to participate to overcome some form of discrimination.

Our model therefore estimates the individual's decision to participate in a group as a function of a variety of individual and community characteristics. From the discussion above, these community characteristics include measures of heterogeneity in *endowments* and *culture*. These are generally presumed to decrease participation, but it is likely that homogeneity in *objectives* – the desire to obtain the service – will outweigh these effects. In addition, it is the members of the many heterogeneous minorities who are more likely to collectivize. Given that we do not explicitly have information on all the specific component of p^*, we proxy the costs of participation and price variables with individual, household and community characteristics. We can express the structural equation underlying the observed behavior as

$$P_i^* = \alpha' W_i + \beta_i' H_i + \varepsilon_i \qquad (3)$$

where P_i^* is the individual's net benefit from participating, W_i is a vector of own characteristics, H_i is a vector of community or neighborhood characteristics that influence the individual's decision, and ε_i is a normally-distributed error term with mean zero and variance σ.

We do not observe the latent variable P_i^*. We see only the results of the individual's evaluation of (3), which is manifest in the choice made by the individual to participate or not to participate:

$$P_i = 1 \text{ if } P_i^* > 0 \qquad (3a)$$

$$P_i = 0 \text{ if } P_i^* \leq 0 \qquad (3b)$$

We estimate (3a-b) as a probit model, correcting for unspecified heteroskedasticity. Unlike previous papers (e.g., Alesina, Baqir, and Easterly 1997, Alesina and La Ferrara 1999) we do not assume that the errors are clustered within

political boundaries, such as wards (administratively defined units within Bangalore and other Indian cities). Note that equation (3) does not specify the community to which each household belongs. Rather than specifying fixed communities based on the administrative or statistical unit in which the individual lives, we determine community characteristics directly based on responses from each household's neighbors. Also, in our empirical application we do not observe actual participation in community-based efforts. Instead we only observe the outcome from the individual's evaluation of (3) as the response to a question whether the household would participate in community based service provision. U_r, U_o and P_i are thus the *expected* utility and benefits from participating. Details are discussed in the next section.

III. Data

We test our model empirically using a household level socioeconomic survey data set for Bangalore, India (Deichmann, Lall and Suri 2002). The focus of the survey is on service provision and housing characteristics, but also includes a comprehensive consumption module and general household information. 2905 households in the area under the jurisdiction of the Bangalore City Corporation (i.e., the city proper rather than the metro area) were selected using a random sampling scheme. The number of households selected in each of 100 city wards is proportional to the number of households in the ward according to the 2001 census. To facilitate mapping and spatial analysis of survey results, the geographic location of each household's residence has been captured using global positioning system receivers.

Bangalore is located in the southern state of Karnataka. Based on 2001 census results, Bangalore is the fourth most populous city in India with 4.3 million people. It is the center of the fifth largest urban agglomeration in the country with 5.7 million inhabitants. The city is best known as a global center for software research and services. Its role as a regional economic engine is attracting a large number of migrants from all over southern India, which together with continuing high fertility levels has led to a

population growth rate of about 3% per year between 1991 and 2001. While a share of these migrants are highly skilled computer workers, Bangalore continues to attract migrant workers in all occupational and income categories. The city is thus characterized by a mix of high, middle and low income housing. For instance, squatter settlements are represented by 7.6 % of sample households. The following paragraphs describe the variables used in our empirical analysis. Table 1 provides a list of individual and community variables used in this analysis and their definitions. Summary statistics are given in Table 2.

Willingness to participate

The Bangalore survey did not measure actual (i.e., revealed) community participation. Instead, the survey asked the following question:

> "*Imagine that your community could improve access to a service (such as water supply or garbage collection)* ***only*** *through actions or contributions by all members of the community. Would you participate in such a project?*"

Pre-coded answers were given as "*Yes, definitely*", "*Yes, probably*", "*No, probably not*" and "*No, definitely not*". The spatial distribution of the respondents who answer '*Yes, definitely*' compared to other respondents is shown in Figure 1. Visual inspection does not reveal any obvious clustering of responses. Households who answered in the affirmative were then asked whether they would contribute labor and/or money for the initial investment and/or for operations and maintenance. The responses are summarized in Table 3. In this paper we are only concerned with the overall participation decision. Almost three quarters of the respondents state that they would participate in community action, and roughly 40% state that they would definitely participate. These numbers are quite high and reflect the generally high level of civic commitment found in southern India. A response that the household would participate in community action, of course, does not mean that the household will indeed commit time or other resources when a project is actually implemented. This problem is familiar from

contingent valuation or willingness-to-pay studies (e.g., Whittington 1998), and is also not too different from stated membership in a club or other social group. Being a member does not necessarily mean active participation in the club's activities. To address this problem, we focus on those households who answered that they will *definitely* participate, since it is likely that these are households who would in fact engage in community activities. Even so, in the results section we will briefly discuss results for the wider definition of participation (both, households who answered probably and definitely yes).

Individual characteristics

The decision to participate in community initiatives is conditioned on individual and community characteristics. Among individual characteristics we are most interested in the household's tenure and income (expressed as expenditures per capita). We distinguish between owners and non-owners. However, Indian cities tend to have highly regulated housing markets (Malpezzi and Tewari 1991). Stringent rent controls mean that long term tenants have no incentive to change dwellings, if their rents have not increased to market levels. Owners cannot replace renters because regulation gives tenants wide-ranging protection from eviction. Furthermore, long term tenants often can perform transactions on properties with exchange of substantial key money. In such environments we can expect long term tenants to act in very similar ways as owners. In our community participation analysis, we therefore expand our definition of tenure to include those household who have own their home, as well as those who have lived in their dwelling unit for at least twenty years.

To consider varying degrees of vulnerability to eviction even if the household has tenure security (see Payne 2001), we control for various housing categories. Ranked in increasing order of tenure stability these are slums and squatter settlements, resettlement colonies, unauthorized revenue sites, cooperative developments, and privately developed formal settlements. While residents of squatter settlements have a fairly high chance of being evicted, legally constructed private housing has the safest tenure status. Almost half of the households in Bangalore live on revenue sites. These are housing developments on

land that was brought into the market without formal approval by the planning authority. The legality of the conversion of primarily agricultural land to non–agricultural use is ambiguous. While the revenue department can authorize land conversion with permission of the planning authority, in practice authorization is often given without planning reviews (Ravindra 1996). We also test for significant differences in the type of dwelling units. We might expect that apartment dwellers have more interaction with their neighbors and might therefore be more inclined to participate in community action than residents of attached or free standing houses.

The household's income is measured by its average annual per capita consumption of food and non-food goods and services. The survey includes a comprehensive consumption module modeled on the Living Standards Measurement Surveys (Grosh and Glewwe 2000). For each household we construct a consumption aggregate following standard conventions (Deaton 1997, Deaton and Zaidi 1999). The mean annual per capita consumption in our sample is 30,735 rupees corresponding to approximately 640 USD.[3] Bangalore has a large middle class and a considerable number of wealthy individuals engaged in the modern sector. But there continue to be large variations in living standards across the city with a significant proportion of the population having very low consumption. The spatial distribution of per capita consumption by quartiles is shown in Figure 2. In contrast to many other cities around the world, there is no obvious clustering of rich or poor areas. To test for the possibility of a non-linear relationship between welfare status and participation, we include annual per capita consumption as well as a quadratic term in the empirical model. Figure 3 shows the type of contribution that households would be willing to make by consumption quintiles. As expected, poorer households are more willing to contribute labor, while wealthier households are more inclined to provide monetary contributions.

We control for other individual household characteristics as follows: human capital variables are likely to affect the decision to participate. We expect that households

[3] The standard deviation is quite high with 20,867 rupees. The median annual per capita consumption is 25,561 rupees.

whose household head is more educated (formal schooling) and older (experience / tacit knowledge) are more likely to anticipate benefits from participating. For female headed households, the opportunity costs of participation might be very high as they have to take care of children and household chores while being the main bread earner. Being a member of a scheduled caste increases a household's vulnerability. As we discussed in the description of our model, minorities or more vulnerable households may be more likely to participate in self-help groups, since these households can rely less on service provision by the public sector. Whether this is indeed the case for scheduled castes in India is somewhat debatable, since these groups receive considerable affirmative action benefits.

Community variables

We consider the impact of the following community level variables on the stated willingness to participate in community action: language fragmentation and the degree of dominance of the main language as measures of social and cultural community heterogeneity; average income (expenditure); and inequality as a measure of economic heterogeneity.

A major question in estimating the effects of community level variables on the probability of participating in local collective action is how to define a community. In the absence of precise information on the location of household residences, most studies use fixed political or statistical units. For instance all households residing in the same block, ward, city or district would be considered members of the community. In a review of about forty social science and economic studies that assess neighborhood effects, almost all use census tracts, counties or other administrative units (Dietz 2000). Recent studies on community participation in the U.S. have used the metropolitan statistical areas (MSA) as units of analysis (Alesina and La Ferrara 2000, Di Pasquale and Glaeser 2000). La Ferrara's (2000) study on Tanzania defines communities as residents of the same village. Given the large size of some of these units, the assumption that people living at opposite ends of a unit interact or influence each other's decisions is sometimes rather

tenuous. Households that may live in close proximity to each other, but happen to live on different sides of an artificial boundary, in contrast, are assumed to have no interaction. Administrative definitions of community are appropriate, however, where the research question is related to the impact of policies. Households living in the same unit may be exposed to the same regulatory or administrative regime. For Bangalore, it is ambiguous whether neighborhood or administrative effects are more important. Households are more likely to be influenced by other households near by, but local ward councilmen may also have some influence over the level of services obtained within their jurisdiction.

We therefore use a specified number of closest neighbors for each household as our definition of community, but also explore possible changes in the results when the ward is used to define community.[4] In the absence of comprehensive information on the actual range of interaction, the decision how many neighbors define a community is critical. A small number of neighbors may well reflect actual face-to-face interaction as residents may interact mostly with people living in the same street or on the same block. However, many community based initiatives require wider participation, which would call for group formation across several city blocks. A small number of neighbors may also introduce considerable random variation of community based indicators across households. Given the relatively large sample size and good geographic coverage in our survey, we chose 25 nearest neighbors as the definition of community. This number is similar to the average number of sample households per ward. Results do not change significantly when slightly fewer (20) or more (30) neighbors are used. In the remainder of the paper we use the term *community* in general terms as a group of nearby residents that interact and potentially engage in activities towards a common goal. Communities defined by the number of nearest neighbors are called *neighborhoods*, while *wards* refer to communities defined by the administrative divisions within the city.

[4] We also considered a distance cut-off which treats all neighbors that reside within a specified neighborhood as members of the same community. However, the number of neighbors will vary considerably among observations, which will reduce the stability of the resulting community variables.

We use the household's mother tongue as the main indicator of social and cultural homogeneity. South India is characterized by a high degree of ethno-linguistic variation. Since many migrants are from neighboring states, Bangalore residents include a range of ethnicities with different mother tongues. In our sample, more than twelve different languages are represented.[5] The distribution of the four largest language groups in our sample is shown in Figure 4. Some degree of clustering is evident only for Urdu speakers. Almost half of all sample residents speak Kannada, the dominant language in Karnataka. Kannada is used widely in local and state administration. In fact, a recent decree requires all official correspondence in the state to be carried out in Kannada rather than English or Hindi. Mother tongue also corresponds well with religion, an alternative measure of potential group coherence, but provides more cultural disaggregation among the sample households. About 78% of the sample households are Hindus and of these, 45% are Kannada speakers. Among Muslims, 89% are Urdu speakers. Mother tongue varies significantly among Christians who constitute less than 5% of the sample. Other religions (Sikh and Jain) make up only 0.4% of sample households.

We measure community fragmentation using the approach employed by Alesina and La Ferrara (2000) as the probability that two randomly selected members of the community belong to different language groups. The fragmentation index is calculated as:

$$Language\_fragmentation_j = 1 - \sum_k s_{jk}^2 \qquad (4)$$

where j represents a given community, k is the language, and s is the share of households in the community speaking language k. As discussed above, we believe that in a very heterogeneous environment such as Bangalore, there may be differences between community participation by members of the dominant ethno-linguistic group (Kannada speakers), and members of minority groups who may have migrated to the city relatively

[5] These are: Kannada (47.0 percent of the sample population), Urdu (15.8), Tamil (15.4), Telegu (12.8), Malayalam (2.3), Hindi (2.3), Marathi (2.1), Konkani (0.8), Tulu (0.4), Corgi (0.1), English (0.1), Others (0.9)

recently. Native speakers may feel better represented by their elected and non-elected officials and may therefore expect the government to provide community services. Members of minority groups, in contrast, may face barriers to interaction with public institutions and perceive a greater need for self reliance. This is similar to the situation in the U.S. where, according to Alesina and La Ferrara (2000), African Americans are "*more conscious of being a minority and have extra incentive to engage in political action to preserve their identity and foster their political and civil rights.*" (p. 864). In addition to general language fragmentation, we therefore also test whether participation is affected by the degree of dominance of the most important language in the community, and whether there are differences between speakers of the dominant language and speakers of minority languages. Finally, we consider the effect of economic inequality on the participation decision using a local Gini coefficient, while controlling for overall neighborhood income levels. The local Gini for neighborhoods and wards is computed respectively by using per capita consumption of the household's closest neighbors or of all other households within the same ward.

IV. Findings

We now present the empirical results of our analysis and discuss the sensitivity of these results to the choice of the dependent variable and the definition of the local community. Table 4 presents the results for those households who answered that they would *definitely* participate. Columns (1) and (2) show estimates for communities defined as the household's nearest neighbors, while columns (3) and (4) present ward level results. Table 5 presents the results where participating households include those that answered that they would *probably* participate.

Does tenure security enhance community participation? We find that security of tenure as measured by ownership (or very long tenure) has a positive and significant effect on the probability of participation. The marginal effect of tenure security in columns (1) and (2) is 0.125 – having secure tenure increases the probability of

participation by 12.5 percent. The coefficient is significant and stable across model specifications—choice of community variables and definition of participation. Beyond ownership, we find that housing categories that are characterized by more secure tenure arrangements—government provided plots/flats, cooperative/employer housing, and unauthorized revenue sites—encourage the willingness to participate in community efforts. This implies that strengthening property rights and formalizing existing tenure regimes will have a significant impact upon a community's stability and its ability to organize to achieve a common goal. This is turn calls for more systematic institutional analysis of different tenure regimes to better inform policymakers on how they can phase in more secure tenure rights.

In addition to tenure security, we find that households living on revenue sites and cooperative housing developments are more likely to participate than other households (the control group being households in slum and squatter settlements). The coefficients for both these categories are positive and significant. For example, using neighborhoods as the definition of community (column (1)), the estimate for revenue sites (category 3) is 0.122. This means that that the probability of participation of these households is 12 percent higher than for households living in slum and squatter settlements. The coefficients for both these housing categories (revenue sites and cooperative housing developments) remain positive and significant when we replace neighborhoods by wards, and also when we use a broader definition of willingness to participate.

Does welfare status matter? We find the probability of participation increases at a decreasing rate with per capita consumption. The coefficients for consumption and consumption squared are individually as well as jointly significant. In column (1), using the neighborhood level community variables, we estimate that the effects of added per capita consumption on the probability of participation peaks at Rs. 11,500, and drops to zero at Rs. 23,000. This corresponds to the 45^{th} percentile of the consumption distribution in Bangalore. These results hold for ward level communities. The results however are not

jointly significant when we change the dependent variable from 'definitely yes' to 'definitely and probably yes'.

In addition to own income levels, we test if community income levels have an effect on the probability of participation. The community level income variable for each household is the average per capita consumption of all other households in the community. Community income is not significant using the 25 closest neighbors, but is significant using wards as the community definition. Using ward level estimates (column (3)) we find that participation peaks at Rs. 31,000, and drops to zero at Rs. 62,000. Participation thus appears to be highest for middle class households and among households in middle class communities. This is reflected in the estimates for individual and community income effects. In another specification not reported in these tables, we tested the middle class hypothesis by replacing own consumption and consumption squared by a dummy variable, which takes the value one, if the household belongs to the middle two per capita consumption quartiles. The coefficient for the middle class is positive and significant suggesting that middle class households are indeed more likely to participate.

Besides the impact of tenure security, our second main hypothesis concerns the effects of community heterogeneity in endowments and in culture. We find that heterogeneity in endowments measured by the Gini coefficient of community level per capita consumption does not have any effect on willingness to participate. The coefficient is not statistically significant using either definition of community (closest neighbors and wards) and the two dependent variables. We use two specifications to test for the effects of cultural heterogeneity. In the first version using neighborhood variables (column (1)) we use the share of the dominant language and whether the household belongs to the dominant language group. The F-test for joint significance shows that both of these variables are jointly significant at 5%. The marginal effect for the share of the dominant language is –0.103 but is not individually significant. This implies that willingness to participation may be higher in more diverse neighborhoods. The coefficient for the

variable that indicates whether the household belongs to the dominant language is –0.036 which means that the household's willingness to participate decreases by 3.6 % if it belongs to the dominant language group. In the second specification (columns (2) and (4)), we replace the share of the dominant language in the neighborhood by the fragmentation index described in equation (4). The fragmentation index and the dummy variable of whether the household belongs to the dominant language are jointly significant at the 5% level. The fragmentation index is statistically significant individually and positive, which implies that willingness to participate increases with language fragmentation. However, the fragmentation index becomes insignificant when we use the wards as community boundaries. Using the 'definitely and probably yes' category for the dependent variable makes most of these results statistically insignificant. These findings support our hypothesis that the added cost of heterogeneity does not decrease the willingness to participate, when participation is intended to achieve a common objective. In some cases we even find that participation is higher in fragmented communities.

The hypothesis that member of the majority are favored by public largesse, and the minorities must fend for themselves, receives additional support from the parameter estimate on the indicator for scheduled caste. Members of this traditionally disadvantaged group are far more willing to engage in collective action than other groups. In fact, the effect of membership in this group (11 percent increase in probability) is close to the effect of home ownership (13 percent increase), although both parameters are estimated with sufficient precision that we can safely reject their equality.

Finally, we discuss the effects of three additional household characteristics which are included as controls – age of the household head, education of household head, and whether the household is female headed. Education has been cited as an example of "bridging" social capital – that is, a factor that acts to overcome the barriers constructed by traditionally narrowly "binding" forms of social capital such as race and ethnicity – we also find that education of the household head has significant effects on the

willingness to participate. Using the neighborhood definition of community, we find that having high school education increases probability of participation by nearly 6%. This coefficient is stable and consistent across model specifications. Thus, provision of education, besides having well documented human capital returns, generates a positive externality since it also helps to increase social participation, which in turn facilitates the provision of complementary public services. In contrast, we do not find any effects of age of the household head on willingness to participate. Female headed households are about 8% less willing to participate. One possible explanation of the reduced probability of participation of female-headed households is the added opportunity cost of participation in the presence of additional responsibilities.

Our study also highlights an important analytical issue of direct relevance to public service delivery. Most empirical studies which examine the relationship between community participation and public service delivery, take the community as a given administrative/census defined unit. Our study demonstrates that the definition of community matters in what one eventually says is important in affecting participation. We find that participation increases with welfare status in the ward (administrative definition) specification, but not in the neighborhood (spatially constructed) specification. A priori, it is rarely entirely clear whether a census defined ward is better or worse than a geographically defined nearest neighbor criterion. This highlights the need for sensitivity analysis and suggests that rather than taking a census defined community or manufacturing a statistical community, there is often a need for more detailed identification of social interactions pertaining to service delivery.

V. Conclusions

In this paper we examine factors influencing a household's willingness to participate in community based service provision programs. Using data from a recently completed geo-referenced household survey for Bangalore, India, we test two important hypotheses on why households engage in collective action. The first hypothesis is that

tenure security enhances the probability of participation mainly because the resulting appreciation in housing values can be capitalized and the anticipated benefit stream from service provision is accrued over a longer period. We find that security of tenure has a significant and positive impact on the willingness to participate in collective action for access to urban services. Tenure security is an important policy issue in most developing country cities. Moving from highly insecure to de facto tenure has significant private benefits which include reduced risk of eviction, increased house values, ability to use the home as collateral, and associated rights to urban services (Payne 2001, Kessides 2002). Thus while longer residence seems to confer some *de facto* (exchangeable) ownership rights, the structure of tenure also matters. As tenure security is a function of individual ownership (de facto or de jure) as well as potential vulnerability of the entire community to threat of eviction, collectivism is also likely to 'bond' the neighborhood and enable the community to negotiate the group's claims with the local government (Jimenez 1985). This highlights (a) the importance of increasing access to formal credit markets to enable more households, including the poorest, to enter the housing market, and (b) reducing distortions in the land and housing markets so that property rights can be allocated in more efficient and equitable ways.

Our second main hypothesis is that heterogeneity in endowments or culture does not reduce the willingness of residents to participate in activities that are expected to yield economic benefits or improvements in living standards. This question is of special concern to a development community in search of innovative approaches to address the lack of access to basic services in developing country cities. Drawing on the existing community participation literature, which is largely limited to the question of participation in social clubs or religious groups, may lead to the conclusion that community efforts in heterogeneous communities will have little chance of succeeding. In our study in Bangalore, however, we find that cultural, social or economic heterogeneity does not decrease the willingness to participate in community efforts. In fact, neighborhoods that are more diverse appear to have higher levels of expected participation. It may be that minority groups have less representation in the local

government, and less access to publicly provided services. Our findings suggest that community action is possible even in the heterogeneous communities that characterize rapidly growing urban areas, provided that the goal of participation is to achieve a common objective yielding individual benefits.

In addition to the effects of tenure security and heterogeneity, we find that participation is most prevalent in middle class households and communities. This supports our discussion that the perceived benefits of participation do not offset the cost of interaction for the rich who can either privately obtain the service or may already have access to most basic services. In contrast, the transaction cost of participation (especially in heterogeneous settings) is high for the poor due to limited levels of community trust, as reflected in our focus group interviews.

There is general consensus that community action in the provision of urban services is a viable option when the public sector is unable and the private sector unwilling to invest. However, actual evidence on the success of such efforts is relatively scarce, and we do not know enough about the factors that determine success or failure. Also, as the urban population in developing countries is predicted to double over the next 30 years, all options for ensuring access to basic services need to be considered. An important question then is whether community based service provision is scalable. To make a significant difference, there is a need to expand such programs to a very large number of urban communities. How to facilitate successful community initiatives and how to transfer successful implementations quickly and widely are important questions for researchers and policy makers alike.

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Figure 1: Participation decision

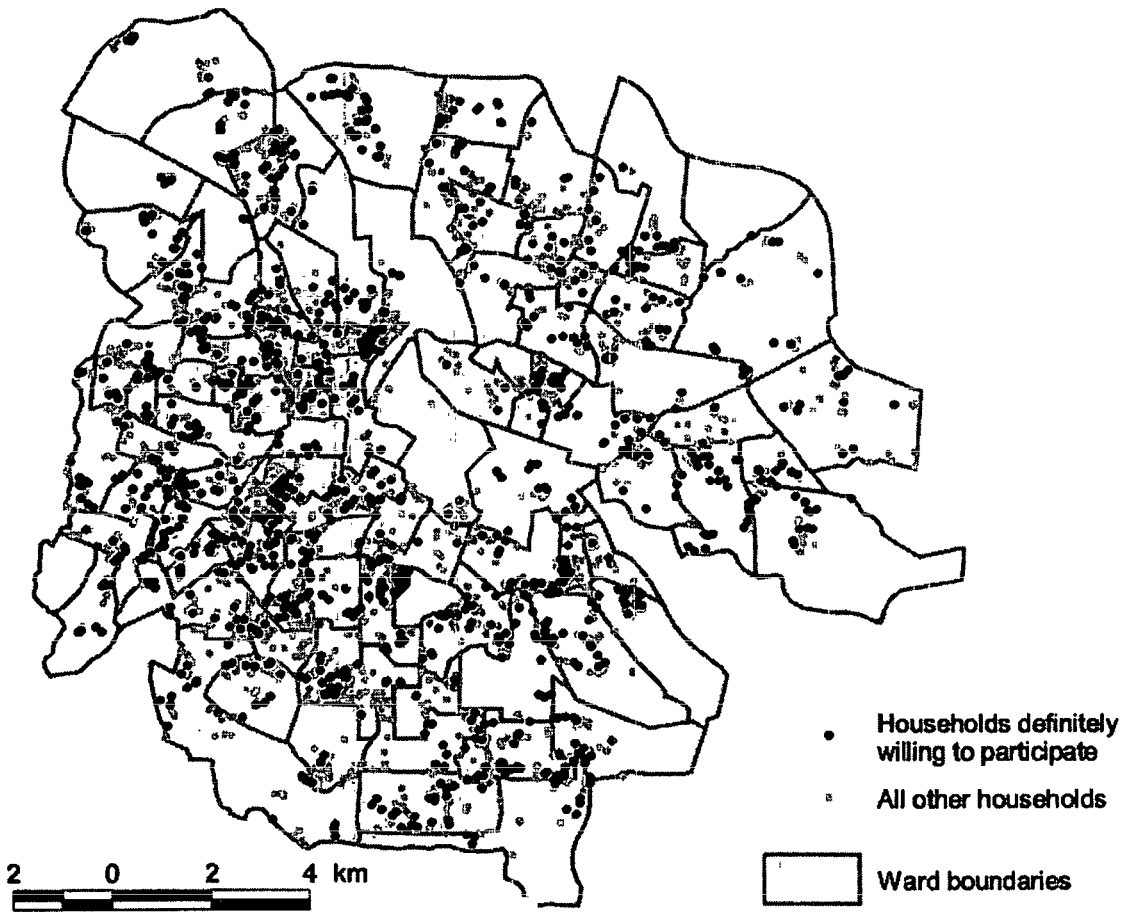

Figure 2: Per capita annual consumption quartiles

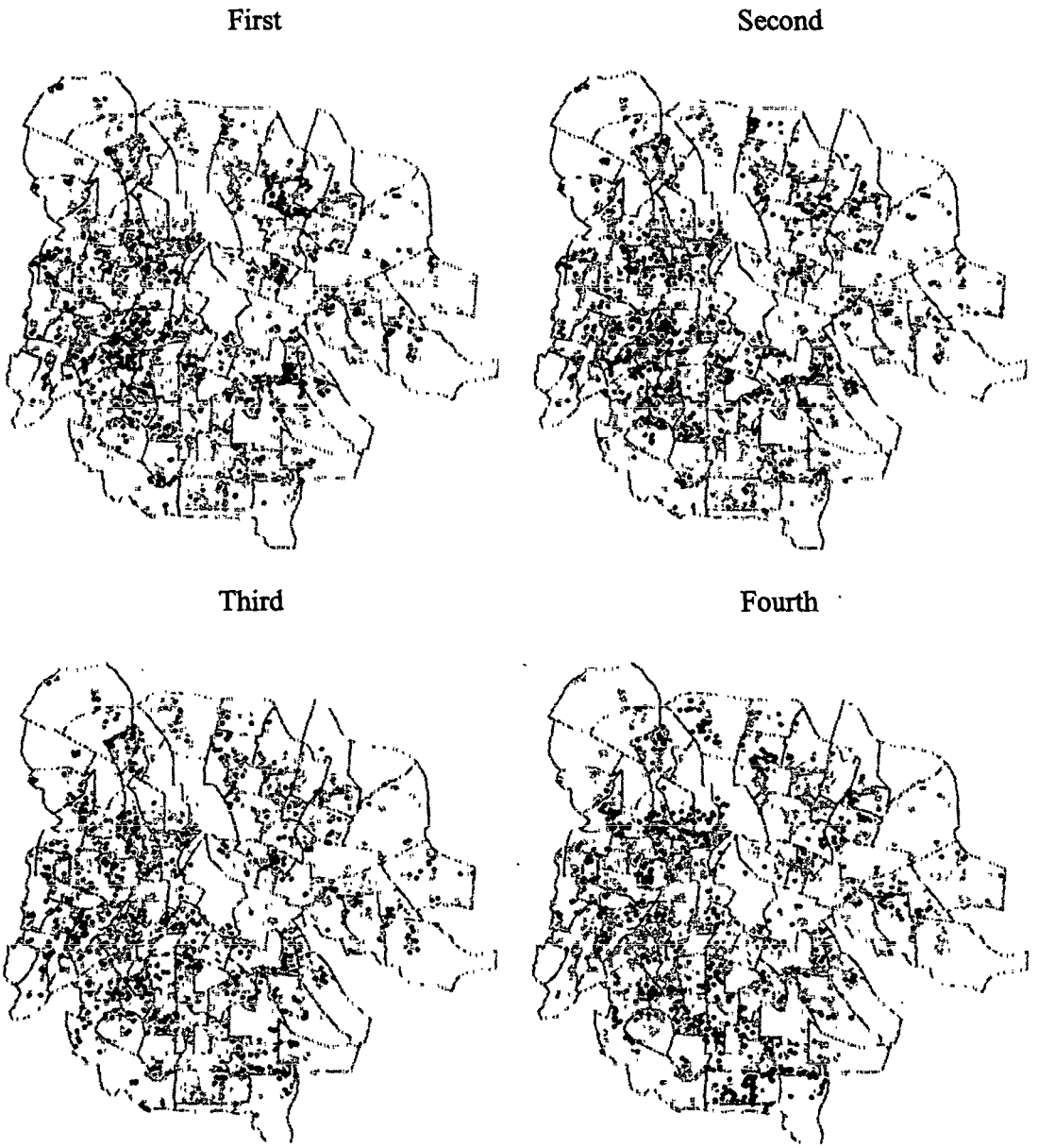

Figure 3: Type of contribution by consumption quintiles

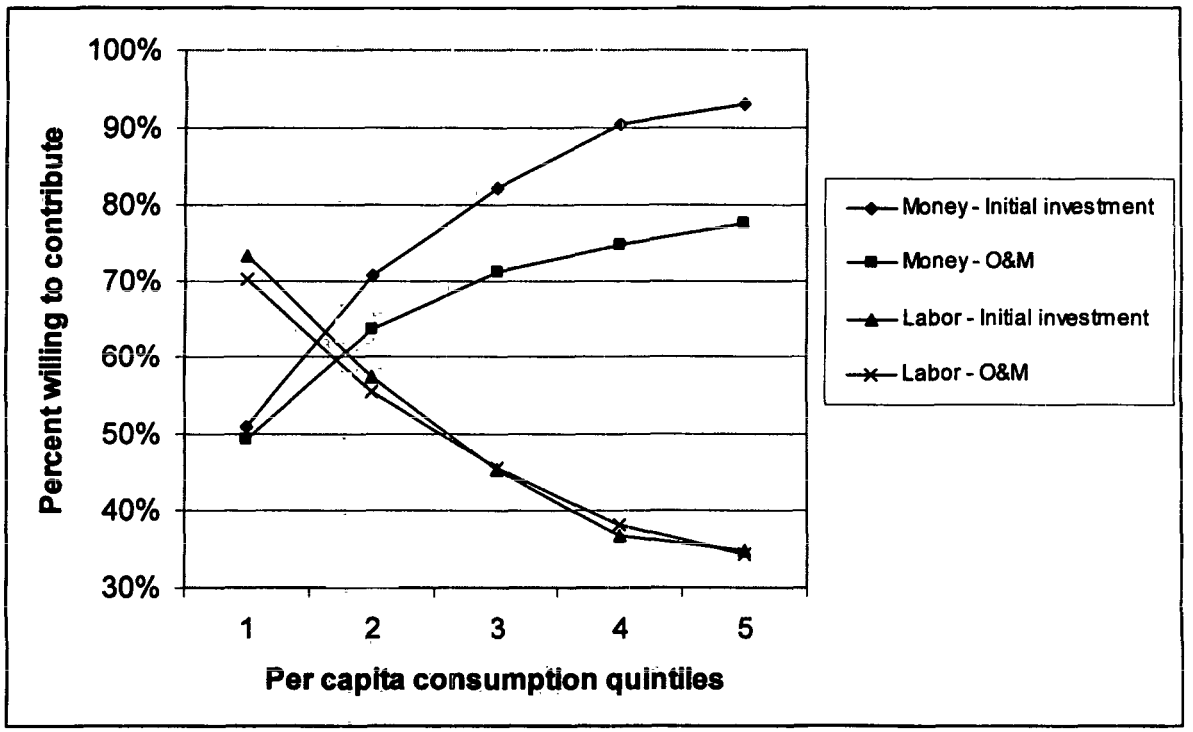

Figure 4: Distribution of major language groups in Bangalore

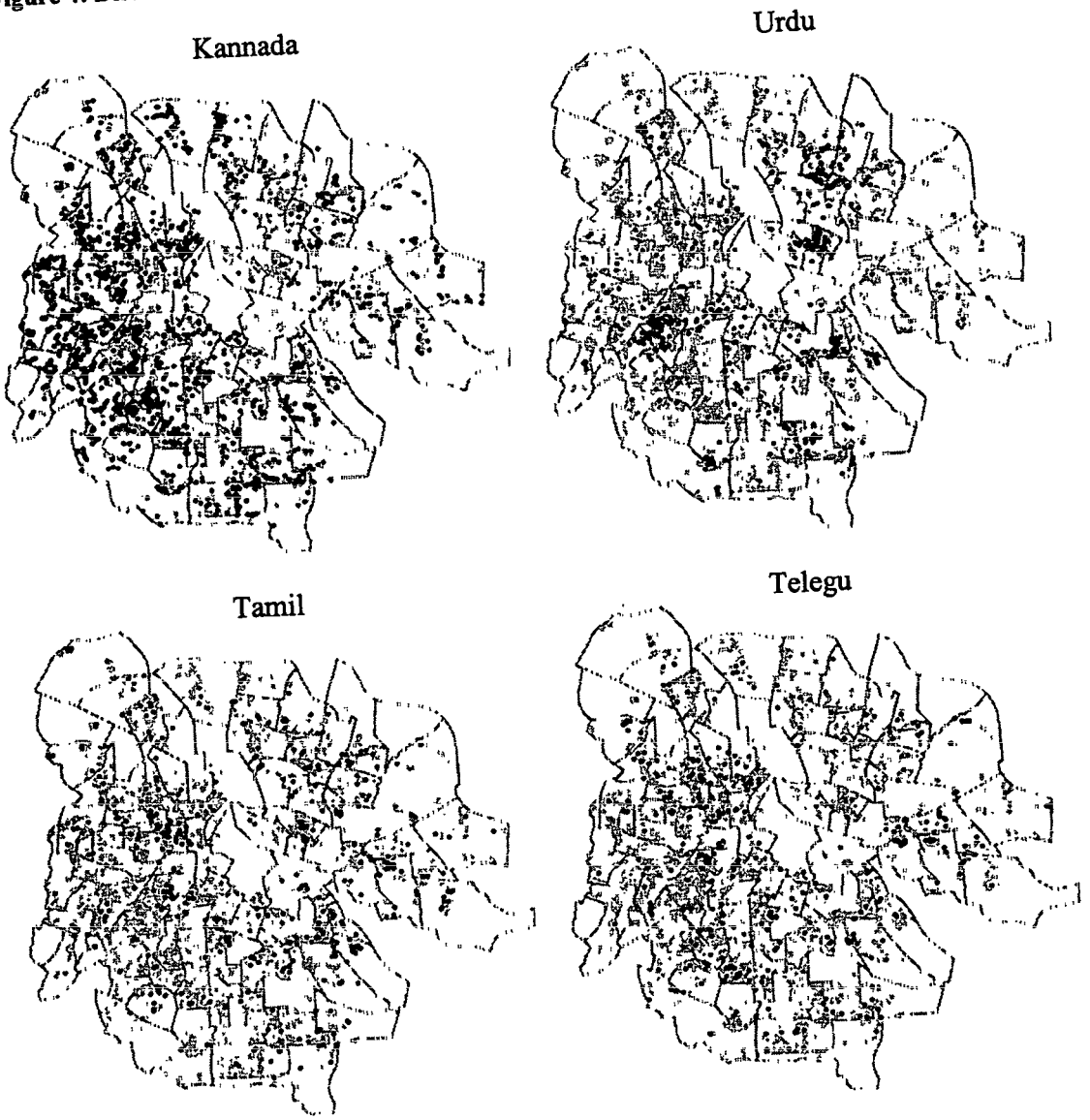

Table 1: Variables

Participation 1	Household responded that it would *definitely* participate in community initiatives to improve urban services
Participation 2	Household responded that it would *definitely* or *probably* participate in community initiatives to improve urban services
Individual	
Tenure status	Household owns dwelling unit or has lived in same unit for 20 years or more
Housing category	1 = squatter settlement, non-notified or notified (base case) 2 = Resettlement area 3 = Unauthorized revenue site or Vatarra* 4 = Government provided plots or flats, Cooperative or employer housing 5 = Private builders or City Improvement Trust Board
Type of house	1 = free standing house 2 = attached house 3 = flat / apartment (base case)
Welfare status	Annual per capita household consumption (Rupees)
Education	Household head has at least a high school degree
Age	Experience - Age of household head
Female HHH	Female headed household
Scheduled caste	Household is a member of a "scheduled caste, tribe or other backward class"
Language	Household's mother tongue is the dominant language group in community
Community	
Fragmentation	Probability that two households in the community have the same mother tongue
Language dominance	Share of the dominant language among households in the community
Inequality	Gini of household annual per capita consumption in the community
Welfare level	Average annual per capita household consumption of neighbors in the community (Rupees)

* Group homes initially built for industrial workers

Table 2: Variable means and standard deviations

	Mean	Std. deviation
Dependent variables		
Households definitely willing to participate	.746	.435
Households definitely or probably willing to participate	.391	.488
Individual variables		
Tenure status (Secure tenure)	0.629	0.483
Housing category 1	0.076	0.264
Housing category 2	0.013	0.113
Housing category 3	0.578	0.494
Housing category 4	0.164	0.370
Housing category 5	0.169	0.375
House type 1	.365	.481
House type 2	.600	.489
House type 3	.035	.183
Welfare status (in 10,000s)	3.068	2.086
~ squared (in 10,000s)	13.797	31.979
Education	.697	.459
Age	47.35	12.34
Female headed household	.075	.263
Scheduled caste	.128	.335

	Community defined as nearest neighbors		Community defined by ward boundaries	
	Mean	Std. deviation	Mean	Std. deviation
Fragmentation	0.609	0.139	0.617	0.129
Language dominance	0.532	0.156	0.531	0.144
Community welfare level	3.034	0.837	3.068	0.901
~ squared	9.911	5.732	10.226	6.949
Inequality	0.265	0.058	0.269	0.063

Table 3: Willingness to participate and type of contribution (percent)

Would you participate?	Percent
Definitely yes	39.1
Probably yes	35.5
Probably no	16.4
Definitely no	9.1

Type of contribution	Initial investment (percent)	Operations & Maintenance (percent)
Money	77.8	48.5
Labor	49.1	67.4

Table 4: Estimation results for households definitely intending to participate

	Community defined as nearest neighbors		Community defined by ward boundaries	
	(1)	(2)	(3)	(4)
Individual variables				
Tenure status	0.125	0.125	0.123	0.123
	(0.019)**	(0.019)**	(0.019)**	(0.019)**
Housing category 2	-0.063	-0.065	-0.072	-0.073
	(0.088)	(0.088)	(0.087)	(0.087)
Housing category 3	0.122	0.122	0.115	0.114
	(0.038)**	(0.038)**	(0.038)**	(0.038)**
Housing category 4	0.22	0.219	0.213	0.214
	(0.045)**	(0.046)**	(0.046)**	(0.046)**
Housing category 5	0.108	0.107	0.103	0.102
	(0.045)*	(0.045)*	(0.045)*	(0.045)*
House type 1	0.011	0.012	0.009	0.008
	(0.054)	(0.054)	(0.054)	(0.054)
House type 2	0.022	0.023	0.019	0.02
	(0.053)	(0.053)	(0.053)	(0.053)
Welfare status	0.023	0.023	0.028	0.028
	(0.010)*	(0.010)*	(0.010)**	(0.010)**
~ squared	-0.001	-0.001	-0.001	-0.001
	(0.001)*	(0.001)*	(0.001)*	(0.001)*
Education	0.057	0.056	0.053	0.053
	(0.023)*	(0.023)*	(0.023)*	(0.023)*
Age	0.05	0.05	0.05	0.05
	(0.031)	(0.031)	(0.031)	(0.031)
Female headed household	-0.088	-0.088	-0.092	-0.092
	(0.034)*	(0.034)*	(0.034)**	(0.034)**
Scheduled caste	0.112	0.112	0.114	0.114
	(0.029)**	(0.029)**	(0.029)**	(0.029)**
Language	-0.036	-0.033	-0.013	-0.016
	(0.019)+	(0.020)+	(0.019)	(0.019)
Community variables				
Fragmentation		0.123		0.114
		(0.075)+		(0.080)
Language dominance	-0.103		-0.136	
	(0.066)		(0.073)+	
Community welfare level	0.095	0.094	0.142	0.135
	(0.069)	(0.069)	(0.052)**	(0.052)**
~ squared	-0.016	-0.016	-0.023	-0.022
	(0.010)+	(0.010)	(0.007)**	(0.007)**
Inequality	0.261	0.263	0.171	0.212
	(0.176)	(0.175)	(0.172)	(0.169)
Observations	2901	2901	2901	2901
F-tests for joint significance				
Welfare status & ~squared	(5.08)+	(5.04)+	(7.18)*	(7.36)*
Welfare level & ~squared	(4.45)	(4.66)+	(18.55)**	(18.84)**
Fragmentation & language	(8.21)*	(8.43)*	(5.02)+	(3.54)

Table 5: Estimation results for households definitely or probably intending to participate

	Community defined as nearest neighbors		Community defined by ward boundaries	
	(1)	(2)	(3)	(4)
Individual variables				
Tenure status	0.12	0.12	0.119	0.119
	(0.018)**	(0.018)**	(0.018)**	(0.018)**
Housing category 2	-0.142	-0.143	-0.138	-0.139
	(0.086)+	(0.087)+	(0.086)	(0.086)
Housing category 3	0.073	0.073	0.077	0.076
	(0.033)*	(0.033)*	(0.033)*	(0.033)*
Housing category 4	0.13	0.13	0.132	0.132
	(0.029)**	(0.029)**	(0.029)**	(0.029)**
Housing category 5	0.044	0.044	0.05	0.049
	(0.034)	(0.034)	(0.033)	(0.033)
Housing type 1	0.087	0.088	0.09	0.089
	(0.044)*	(0.044)*	(0.044)*	(0.044)*
Housing type 2	0.029	0.03	0.032	0.033
	(0.047)	(0.047)	(0.047)	(0.047)
Welfare status	-0.016	-0.016	-0.016	-0.016
	(0.010)+	(0.010)+	(0.010)	(0.010)
~ squared	0.001	0.001	0.001	0.001
	(0.001)	(0.001)+	(0.001)	(0.001)
Education	0.044	0.044	0.041	0.041
	(0.021)*	(0.021)*	(0.021)+	(0.021)+
Age	0.003	0.003	-0.001	-0.001
	(0.029)	(0.029)	(0.029)	(0.029)
Female headed household	-0.01	-0.01	-0.013	-0.013
	(0.032)	(0.032)	(0.032)	(0.032)
Scheduled caste	0.08	0.08	0.079	0.079
	(0.022)**	(0.022)**	(0.022)**	(0.022)**
Language	-0.021	-0.021	-0.014	-0.017
	(0.017)	(0.018)	(0.017)	(0.017)
Community level variables				
Fragmentation		0.069		0.109
		(0.065)		(0.069)
Language dominance	-0.082		-0.133	
	(0.057)		(0.064)*	
Community welfare level	0.003	0.003	0.06	0.053
	(0.060)	(0.060)	(0.043)	(0.043)
~ squared	-0.004	-0.004	-0.01	-0.01
	(0.009)	(0.009)	(0.005)+	(0.005)+
Inequality	-0.061	-0.039	-0.009	0.033
	(0.157)	(0.156)	(0.152)	(0.149)
Observations	2901	2901	2901	2901
F-tests for joint significance				
Welfare status & ~squared	(2.89)	(2.94)	(2.71)	(2.55)
Welfare level & ~squared	(3.69)	(4.14)	(7.84)*	(8.26)*
Fragmentation & language	(4.78)+	(3.90)	(6.24)*	(4.49)

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